

18. Illustrate the forward and backward reasoning in logic programming with a suitable example.
 19. Discuss the concept of a hybrid cloud in the context of machine, learning with a suitable example.
 20. Describe the impact of machine learning on applications across different domains, providing examples.
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APRIL/MAY 2024

**23PECS24A — ARTIFICIAL
INTELLIGENCE AND MACHINE
LEARNING**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are the key characteristics of state space search algorithms?
2. Define AI problems and state the criteria for their success.
3. Define the Frame Problem and its significance in AI.
4. Define the term "knowledge representation" and its relevance in AI.
5. Give a short note on the role of resolution in predicate logic.

6. What is the difference between forward and backward reasoning in logic programming?
7. Define the term "Big Data".
8. List out the key components of the hybrid cloud.
9. What is data preparation in machine learning?
10. Write a short note on machine learning.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL the questions.

11. (a) Describe the problem characteristics of search algorithms.

Or

- (b) Explain the concept of Production Systems and its applications in AI.

12. (a) Explain the Generate and Test approach in heuristic search techniques.

Or

- (b) Illustrate the Best-First search algorithm with an example.

13. (a) Differentiate between procedural and declarative knowledge in detail.

Or

- (b) Explain, how natural deduction differs from resolution in predicate logic.

14. (a) Describe the role of data mining in machine learning.

Or

- (b) Explain the concept of big data and its implications for machine learning.

15. (a) Illustrate the importance of data preparation in the machine learning process.

Or

- (b) Explain the importance of the machine learning cycle in practical applications.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss the various issues involved in designing search algorithms, considering search spaces.
17. Elaborate the importance of knowledge representation in AI, highlighting the challenges and approaches.